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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/408,921	09/30/1999	ANTHONY J. RICCI	LAM1P118	4619

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BEYER WEAVER & THOMAS LLP
P.O. BOX 778
BERKELEY, CA 94704-0778

EXAMINER
BUEKER, RICHARD R

ART UNIT	PAPER NUMBER
1763	18

DATE MAILED: 03/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

AS-18

Office Action Summary	Application No. 09/408,921	Applicant(s) RICCI ET AL.	
	Examiner Richard Bueker	Art Unit 1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 December 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14,18 and 40-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14, 18 and 40-42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not). Misnumbered claims 19-21 have been renumbered as claims 40-42. Claim 8 stands rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention, for the reasons stated in the previous office action.

Claims 2, 41 and 42 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In claim 2, line 2, the phrase "micro-defects within the plurality of drilled holes are substantially eliminated" is new matter. The specification as originally filed did not refer to micro-defects within the plurality of drilled holes. The same is true for the claim 41 limitation of "wherein the pre-treating by heating eliminates micro-defects on surfaces of the plurality of drilled holes", and the claim 42 limitation of "wherein micro-defects on surfaces of the plurality of drilled holes are substantially eliminated by heating the portion".

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: If, for argument's sake, the claim 2 phrase "micro-defects within the plurality of drilled holes are substantially eliminated"; were not considered

new matter, such claim language would still require antecedent basis in the specification. Presently, there is no antecedent basis in the specification for this newly added limitation. The same is true for the claim 41 limitation of "wherein the pre-treating by heating eliminates micro-defects on surfaces of the plurality of drilled holes", and the claim 42 limitation of "wherein micro-defects on surfaces of the plurality of drilled holes are substantially eliminated by heating the portion".

Claims 12-14, 18 and 42 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Maydan (5,746,875) for the reasons stated in the previous office action.

Claims 12-14, 18 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maydan in view of Gupta (6,083,451) for the reasons stated in the previous office action.

Claims 1-6 and 8 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Maydan (5,746,875). Maydan teaches (see col. 2, lines 3-6 and 16-21) that it was known in the prior art to form a GDP by drilling holes and machining the edges and interiors of the holes by routing and or honing with diamond powder to reduce defects. Regarding the claim 1 limitation of "wherein the portion of the gas distribution plate has substantially no micro-defects about 50 micrometers or greater", it is noted that the dictionary definition of "substantially" is "being largely but not wholly that which is specified". Thus, this claim limitation means that the recited portion of the GDP is largely but not completely without

micro-defects about 50 micrometers or greater. Also, claim 1 does not make clear how big the recited "portion" is or how much of the GDP is included in the recited "portion".

Claims 1-6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shang (6,182,603) in view of Maydan (5,746,875). Shang is cited for the reasons stated in the previous office action. Maydan teaches (col. 2, lines3-6 and 16-21) that it was conventional in the prior art to provide holes in a GDP by drilling as now recited in claim 1. It would have been obvious to one skilled in the art to provide the GDP holes of Shang by drilling because Maydan teaches that GDP holes can successfully be provided by drilling.

Claims 12-14, 18 and 42 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Wicker I (5,993,594) for the reasons stated in the previous office action.

Claims 1-14, 18 and 40-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wicker I (5,993,594) or Wicker II (5,863,376) taken in view of Maydan (5,746,875) and Chen (5,824,594), and optionally in further view of applicants' description of the prior art, for the reasons stated in the previous office action. Regarding the newly added limitation of the GDP holes having been provided by drilling, it is noted that Chen (col. 8, lines 11-12) teaches the step of providing GDP holes by drilling. Also, Maydan teaches (col. 2, lines 3-4) that drilling was the conventional prior art method of providing GDP holes. It would have been obvious to one skilled in the art to provide the GDP holes of Wicker I or Wicker II by drilling because Chen and Maydan teach that GDP holes can successfully be provided by drilling.

Claims 1-14, 18 and 40-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen (5,824,605) taken in view of Maydan (5,746,875) and Gupta (6,083,451) for the reasons stated in the previous office action.

Applicants have argued that Maydan and the other cited references do not teach a particular dimension of defect which is eliminated by either machining or polishing. It is noted, however, that applicants' claims do not require the ***elimination*** of a particular size of defect. Regarding the claim 1 limitation of "wherein the portion of the gas distribution plate has substantially no micro-defects about 50 micrometers or greater", it is noted that the dictionary definition of "substantially" is "being largely but not wholly that which is specified". Thus, this claim limitation means that the recited portion of the GDP is largely but not completely without micro-defects about 50 micrometers or greater. Therefore, the claims do not require the elimination of a particular size of defect. Also, claim 1 does not make clear how big the recited "portion" is or how much of the GDP is included in the recited "portion". Thus, the claims as written only require that micro-defects about 50 micrometers or greater are largely but not completely not present, in some undefined portion of the GDP. The claims as written allow for the presence of substantial numbers of defects in the GDP, as long as they are not in the "portion" of the GDP referred to in the claims. The claims as written also allow for defects within the recited portion, as long as the number of defects in the portion are not "substantial". Furthermore, the polishing taught by Maydan is properly considered a machining step (see dictionary definition of "machine" cited in the previous office

action), and Maydan teaches that the purpose of this polishing/machining step is to eliminate defects.

Further regarding the size of defects recited in the claims, it is noted that the claim limitation of "about 50 micrometers" allows for micro-defects larger than 50 micrometers. In *In re Ayers*, 69 USPQ 109, a range of "at least about 10%" was held to be anticipated by a prior art teaching of "not to exceed about 8%".

Applicants have argued that external polishing is not able to polish inside of drilled holes. It is noted, however, that Maydan teaches (col. 2, lines 3-6 and 16-21) that it was known in the prior art that it was desirable to polish the inside of through holes to eliminate defects. Furthermore, other than amended claim 2, the present claims merely require that that micro-defects are substantially not present in only a "portion" of the GDP, and the size or location of that "portion" is not defined, and is not defined to include the inside of drilled holes. Regarding amended claim 2, it is noted that this limitation is not actually supported by the specification as originally filed.

Applicants have argued that the Examiner failed to specifically point out anything in Gupta that teaches heat treatment of machined surfaces. It is noted, however, that none of the claims require heat treatment of machined surfaces. Claim 12, for example, recites an article that has a machined surface, and that has been heat-treated. It does not require that the heat treatment step follows the machining step. The heat treatment step taught by Gupta, which is a sintering step, is also necessary to form the ceramic GDP of Maydan, Chen, Wicker I or Wicker II. Maydan teaches that polishing (machining) is a useful step that is in addition to, and after, the required sinter-heating

step. It is noted also that Chen (col. 8, lines 13-14) teaches that a ceramic GDP can be machined before or after the sinter-heating step.

It is noted also that while claims 41 and 42 state that micro-defects are eliminated during heating, these claims are written in a manner such that the micro-defects being referred to are not required to be the same micro-defects recited in claim 12 (which recites micro-defects greater than about 50 micrometers). Thus sinter heating would be expected to eliminate micro-defects in a green ceramic at least to some extent.

Applicants have argued that Wicker I hot presses silicon nitride, and thus his GDP does not have a machined surface. It is noted, however, that the hot press machine itself forms a machined surface. See the definition of "machine" attached to the previous office action. Furthermore, Maydan teaches (col. 6, line 19) that his polishing (machining) step is applicable to silicon nitride, and it would have been obvious to practice the polishing step taught by Maydan on the silicon nitride GDP of Wicker I.

Regarding the limitation of claim 8, it is noted that the particular type of process chemistry to be used in a semiconductor fabrication apparatus is a recitation of intended use that does not so limit the article claim of claims 1 and 8.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Bueker whose telephone number is (703) 308-1895. The examiner can normally be reached on 9 AM - 5:30 PM, Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on (703) 308-1633. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Richard Bueker
Primary Examiner
Art Unit 1763

March 2, 2003